

RIVERS.

The important event in the month was the flood in the Wisconsin River, which is described elsewhere in a special article. This was the third flood of the summer in that river. The reports received indicate good stages in the Mississippi throughout the month, and at the close the river at Davenport was slightly lower than at the end of August.

MISCELLANEOUS.

Southwesterly winds prevailed, but in the north the direction was mostly northwesterly. The highest velocity reported was 37 miles an hour, from the south, at St. Paul, Minn., on the 9th. This is somewhat lower than the highest velocity usually reported in September. For the district as a whole about the average amount of sunshine was experienced. The normal percentage is about 60. The average number of clear days was 13; partly cloudy, 8; cloudy, 9.

WISCONSIN RIVER FLOOD, SEPTEMBER, 1912.

By JAMES H. SPENCER, Local Forecaster.

From about 2 to 3.50 inches of rain in the Merrill-Wausau section of the Wisconsin Valley within 12 hours on Saturday night, August 31, caused the third flood of the summer of 1912 in the Wisconsin River. The flood was preceded by weeks of heavy rains, and the soil was thoroughly soaked and small streams were considerably swollen before the storm occurred that caused the flood. Losses from the flood in the Dubuque River district as a whole will aggregate \$50,000 to \$75,000, possibly more.

The river at Wausau rose from a stage of about 6 feet before the storm to 10.4 feet on the morning of September 1st, and to a crest stage of 12.6 feet at about 10 p. m. of the same date. The rise at and near Merrill was about the same as at Wausau. The river rose nearly 7 feet in three days at Grand Rapids to a crest stage of 11.3 feet on the 4th; and it rose 6 feet at Portage in five days to a crest stage of 11.9 feet on the 7th.

In the lower Wisconsin Valley the flood was the worst of the year, though it did not equal that of October, 1911. The storm that caused the flood also caused washouts that derailed two trains in northern Wisconsin, resulting in the death of a number of persons.

DAMAGE AT MERRILL AND WAUSAU.

Losses from the flood in the Wausau-Merrill section were very light compared to the July flood of this year. Postmaster F. W. Kubasta, of Merrill, reports the losses in that vicinity as follows:

Most of the damage was done to the filling of the dam of the Grandfather Falls Co. They had just about finished the repairs made necessary by the July flood when it was again washed out by the September flood. It is estimated that the damage will be about \$3,000. The same is true of the Merrill Railway & Light Co. They had just about completed a large retaining wall 4 feet thick of solid stone and concrete construction when the flood washed out a section about 40 feet in length. The damage to this property, and the filling thereto, will approximate \$4,000. The damage to railroad tracks, by reason of being washed out, will possibly be \$5,000.

Postmaster A. W. Trevitt, of Wausau, says:

There was but little loss here by the September flood. The only damage was about \$1,000 each to the Chicago & Northwestern Railroad and the Chicago, Milwaukee & St. Paul Railroad; also a loss of about \$500 to the Wausau Street Railway Co.

There was no material loss between Rothschild and Kilbourn, except some to crops on lowlands. From Kilbourn to the mouth of the river the highest water was only about a foot lower than in October, 1911, and large quantities of uncut hay and many fields of corn, potatoes, etc., were swept away. For instance, in the vicinity of Sauk City lowlands 3 miles from the river bed were flooded.

At Portage the levees, which protect property valued at hundreds of thousands of dollars, were strengthened upon receipt of the warnings of the Weather Bureau. Correct stages were predicted three to five days in advance, and Mr. H. S. Rockwood, editor of the Portage Daily Democrat, says: "The telegrams of river conditions were valuable and timely aids to the dwellers of this land of flood." The only serious loss at Portage was to crops on lowlands, amounting to about \$7,000.

WARNINGS ISSUED.

At 2 a. m. of September 1, the following telegram, based on a midnight observation of heavy rain at Medford, Wis., was sent to Wausau: "Rainfall very heavy at Medford. Watch conditions at Wausau." No other warnings could be issued, as the river rose to flood stage at Wausau by the time observations were taken and telegraphed by river and rainfall observers in the Merrill-Wausau section, except Medford.

Forecasts and warnings were issued for towns from Stevens Point to Dubuque 2 to 10 days in advance of the flood crest. They were of much value, and helped greatly in saving property probably equal in value to the total losses from the flood. Much hay in stack and other crops were saved; a large amount of stock was removed to safety from lowlands and islands, and loss to considerable other property was prevented.

The following extracts relative to the flood and the warnings issued are from some of the letters received:

Magnus Swenson, president Wisconsin River Power Co., Prairie du Sac, Wis.: "We wish to express our appreciation of the valuable service the Weather Bureau has rendered in keeping us informed with reference to the floods in the Wisconsin River. The predictions have not only been very accurate, but we have received them in ample time to enable us to prevent serious damage and loss."

Max H. Ninman, Sauk City, Wis.: "Cattle, principally young stock, which are pastured on the lowlands and adjacent islands, were taken home to the farmers' yards in time to save them, thanks to the warnings sent out by the Weather Bureau, which were transmitted to the farmers along the route by the carriers, and by telephone."

Boscobel, Wis.: "Farmers were able to save hay that was cut and some in stack; also a good many boats that would have sustained injury had the warnings not been sent."

L. E. Hammonds, Woodman, Wis.: "Farmers and stockmen made a great saving by the warnings sent me."

A. C. V. Elston, Muscoda, Wis.: "Warnings appreciated. Cattle and other stock moved to prevent loss. Large hay loss, amounting to several thousand dollars."

Warnings issued 7 to 10 days in advance of the flood crest from Dubuque to Prairie du Chien were verified within two-tenths of a foot, and Government contractors, the United States engineers, and others were given abundant time to prepare for high water without loss. Many farmers saved crops and other property; for instance, one Dubuque County farmer harvested 25 acres of millet after the warnings were issued. A week later the field was under water.

The crest stage at Dubuque was 10.7 feet, the highest in September in 27 years, with one exception. The river between Dubuque and Prairie du Chien was only a few tenths of a foot lower than at Dubuque.